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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,900	04/09/2001	Giovanni Zangari	205213US23	5549

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ALEXANDRIA, VA 22314

EXAMINER

BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/827,900

Applicant(s)

ZANGARI ET AL.

Examiner

Kevin M. Bernatz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 27 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Amendments to claims 27, 33 and 39, filed on May 27, 2005, have been entered in the above-identified application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Examiner's Comments

3. The Examiner notes that claim 39 no longer qualifies under 35 U.S.C. 112 6th Paragraph as a proper "means-plus-function" claim since the means have been modified by "sufficient structure, material, or acts for achieving the specified function". See MPEP 2181. As such, the claim has been interpreted in a literal manner as written, i.e. requiring a storage medium comprising a substrate, an in-plane squareness of from 0 to 0.6 and a perpendicular coercivity of up to 2 kOe and capable of achieving a recording density of at least 40 Gb/in² per Paragraph 1 of the Office Action mailed August 11, 2004.

Claim Rejections - 35 USC § 102

4. Claims 27 – 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Daimon et al. (U.S. Patent No. 5,480,694) for the reasons of record as set forth in Paragraph No. 6 of the Office Action mailed on August 11, 2004.

Regarding the amended language in claims 27, 33 and 39 of “having an in-plane squareness of from 0 to 0.6 and a perpendicular coercivity of up to 2 kOe”, the Examiner notes that Daimon et al. teach the claimed squareness (*Figure 2A*) and in *Figure 2B*, Daimon et al. illustrates embodiments having an *in-plane* coercivity of 1.2 kOe. Given that Daimon et al. is teaching an *in-plane* magnetic film (*col. 2, lines 50 – 53*) the Examiner notes that such embodiments will necessarily meet the claimed perpendicular coercivity limitations. I.e. the Examiner notes that there are two broad classes of recording media, perpendicular and in-plane. The properties of the medium are tailored to be maximized along the direction of the magnetic anisotropy, with the desired ratio being near infinite for a theoretically perfectly oriented medium (i.e. for a perfect theoretical perpendicular recording medium, the perpendicular coercivity would be a large value and the in-plane coercivity would be 0). However, in “real life”, the theoretical ratio is rarely, if ever, achieved. Instead, the magnitude of the desired property orientation is simply maximized as much as possible. So in the above example of the perpendicular medium, instead of a “0” in-plane coercivity, there would be a very small, non-negligible value.

Given that Daimon et al. teach that the medium is “in-plane”, the perpendicular component of the coercivity will necessarily be less than the in-plane component. Since the in-plane component is less than 2 kOe, it logically follows that the perpendicular component will be much less than 2 kOe. The Examiner notes that the limitation “coercivity of at least 500 Oe” does not require that the *perpendicular* coercivity be “at least 500 Oe”.

5. Claims 27 – 31, 33 – 37 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikitsu et al. (U.S. Patent No. 6,602,620 B1) for the reasons of record as set forth in Paragraph No. 7 of the Office Action mailed on August 11, 2004.

Regarding the amended language in claims 27, 33 and 39 of “having an in-plane squareness of from 0 to 0.6 and a perpendicular coercivity of up to 2 kOe”, the Examiner notes that Kikitsu et al. teach squareness values of 0.5 or more (*Figure 33 and col. 57, lines 6 – 57*) and perpendicular coercivity values meeting applicants’ claimed range (*Figure 31; col. 10, lines 34 – 41; and Examples*). While the Examiner acknowledges that Kikitsu et al. does not disclose whether the squareness is the perpendicular squareness or the in-plane squareness, the Examiner deems there is sufficient teaching + knowledge in the art that Kikitsu et al. is referring to whatever type of squareness the *medium* is designed for. So in the case of the perpendicular recording media, a perpendicular squareness (or $H_{c_{\text{perpendicular}}}/H_{c_{\text{in-plane}}}$) of at least 0.5, which essentially means an in-plane squareness of 0.5 or less (i.e. $H_{c_{\text{in-plane}}}/H_{c_{\text{perpendicular}}}$). Regardless of which type of medium is described, there is overlap with applicants’ claimed range (either 0.5 – 0.6 or 0 to 0.5).

Claim Rejections - 35 USC § 103

6. Claims 32 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikitsu et al. as applied above, and further in view of Black et al. (U.S. Patent No. 6,162,532) for the reasons of record as set forth in Paragraph No. 9 of the Office Action mailed on August 11, 2004.

Response to Arguments

7. **The rejection of claims 27 - 39 under 35 U.S.C § 102(b) – Daimon et al.**

Applicant(s) argue(s) that Daimon et al. fails to disclose a recording medium meeting the claimed property limitations. The examiner respectfully disagrees.

As noted in the present rejection of record, Daimon et al. explicitly discloses in-plane squareness values and implicitly discloses perpendicular coercivity values meeting applicants' claimed limitations (while the perpendicular magnetic remanence is 2.5 times lower than the in-plane remanence, the Examiner does not believe that the same absolute ratio would necessarily hold true for the coercivity).

8. **The rejection of claims 27 - 39 under 35 U.S.C § 102(b) and/or 103(a) – Kikitsu et al., alone or in combination with Black et al.**

Applicant(s) argue(s) that Kikitsu et al. fail to disclose a medium possessing the claimed properties. The examiner respectfully disagrees.

As noted in the present rejection of record, Kikitsu et al. disclose both perpendicular and in-plane recording media, including perpendicular media meeting

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applicants' claimed coercivity limitations (e.g. *Example 1*). Given that one of ordinary skill in the art would readily appreciate that for perpendicular media, the *perpendicular* squareness should be 0.5 or greater given Kikitsu et al.'s teaching to use higher values of the S^* since such values indicate a more uniform crystal growth (*col. 57, lines 6 – 57*). The Examiner notes that a *perpendicular* squareness of 0.5 or greater is the same as saying an *in-plane* squareness of 0.5 or less, hence reading on the claimed limitation.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

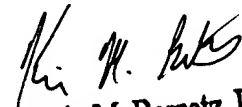
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB
August 1, 2005


Kevin M. Bernatz, PhD
Primary Examiner